BLUE DIAMOND MARINA (PWSNO 1090216)
SOURCE WATER ASSESSMENT REPORT

November 5, 2002

State of Idaho
Department of Environmental Quality

SOURCE WATER ASSESSMENT FOR BLUE DIAMOND MARINA

Under the Federal Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. The Department of Environmental Quality is completing the assessments for all Idaho public drinking water systems. The assessment for your drinking water source is based on well construction characteristics; site specific sensitivity factors associated with the aquifer the water is drawn from; a land use inventory inside the well recharge zone; and water quality history. For non-community transient water systems like Blue Diamond Marina, recharge zones were generally delineated as a 1000-foot fixed radius around the wells.

This report, *Source Water Assessment for Blue Diamond Marina* describes factors used to assess susceptibility to contamination. The analysis relies on information from the well log; an inventory of land use, well site characteristics, potential contaminant sites identified through a Geographic Information System database search; and information from the public water system file. The ground water susceptibility analysis worksheet for Blue Diamond Marina is attached.

Taken into account with local knowledge and concerns, this assessment should be used as a planning tool to develop and implement appropriate protection measures for this system. **The results should <u>not</u> be used as an absolute measure of risk and are not intended to undermine the confidence in your water system.**

Well Construction. The Blue Diamond Marina water system serves a restaurant, residence and marina facilities located on the west side of Cavanaugh Bay near Coolin, Idaho. Drinking water is supplied by a 6 inch cased well on the wooded flats about 200 feet above the lake and 700 feet southwest of the marina. The well was drilled in 1995 to a completed depth of 1100 feet. The six-inch steel casing extends from 20 inches above ground to a depth of 21 feet. The remaining depth of the well is lined with PVC that is perforated between 500 and 540 feet and between 1000 feet and the bottom of the well. The bentonite clay surface seal terminates in granite 20 feet below ground. The static water level is reported to be 325 feet below ground where a fractured granite stratum produces 1.5 gallons of water per minute. At the time it was drilled, the total output of the well was estimated to be 2 gpm. In the summer of 1999 the well temporarily went dry. The well was re fractured and has been producing without interruption since.

Blue Diamond was mostly in compliance with *Idaho Rules for Public Drinking Water Systems* when inspected during a sanitary survey in August 1999. The sanitary well cap has been replaced with a watertight, vented well cap as the survey report recommended.

Well Site Characteristics. Hydrologic sensitivity scores for a well are derived from the soil drainage classification inside the recharge zone boundaries and from information on the well log. Soils in the well recharge zone delineated for the Blue Diamond well are generally poorly drained to moderately well drained. Soils in this drainage classification provide some protection against migration of contaminants toward the well. The well log shows a thin layer of topsoil and gravel and 318 feet of granite lying over the water table.

Potential Contaminant Inventory. Land inside the recharge zone delineated for the Blue Diamond well is mostly wooded. The area is served by the Coolin Sewer District collection system. The road crossing the delineation boundaries is unpaved and carries minimal local traffic. The DEQ underground storage tank database notes the former location of a petroleum storage tank inside the 1000-foot radius. The tank , at lake level at the marina, was removed in 1992-93, and was not counted as a potential source of contamination in the susceptibility analysis. Surface waters of Priest Lake cover about 15 per cent of the delineated area.

Water Quality History. Blue Diamond Marina has had no water quality problems. The system tests quarterly for total coliform bacteria and annually for nitrate contamination. Test results have all been negative.

Susceptibility to Contamination. An analysis of the Blue Diamond well, incorporating information from the public water system file and the potential contaminant inventory, ranked the well at low risk of contamination relative to all classes of regulated contaminants. The ground water susceptibility worksheet for your well is on page 6. Formulas used to compute final scores and rankings are at the bottom of the worksheet.

Source Water Protection. This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

Blue Diamond has a good water quality history. Continuing to maintain and operate the system in compliance with *Idaho Rules for Public Drinking Water Systems* is the best drinking water protection for the Marina. The marina investigated alternative sources of water in 1991 but decided that the cost of purifying lake water was prohibitive. In order to conserve well water, the marina maintains a separate distribution system for lake water for non potable purposes such as car and boat washing, toilets, and irrigation. Additionally, the marina well water system includes an alarm that indicates when the water level in the reservoir is low, signaling possible leaks, electrical or pump malfunction.

A voluntary measure every system should employ is development of an emergency response plan. There is a simple, fill-in-the-blanks form available on the DEQ website (www.deq.state.id.us/water/water1.htm) to guide systems through the emergency planning process.

Because Blue Diamond may not have direct jurisdiction over the entire recharge zone for its well, it will be important to form partnerships with neighboring landowners to regulate land uses that can degrade ground water quality. The goal of source water protection is to maintain current water quality for the future despite the changes we can expect with population growth in North Idaho.

Assistance. Public water suppliers and users may call the following IDEQ offices with questions about this assessment and to request help with drinking water protection planning.

Coeur d'Alene Regional DEQ Office (208) 769-1422

State IDEQ Office (208) 373-0502

Website: www.deq.state.id.us

POTENTIAL CONTAMINANT INVENTORY
LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as Superfund is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

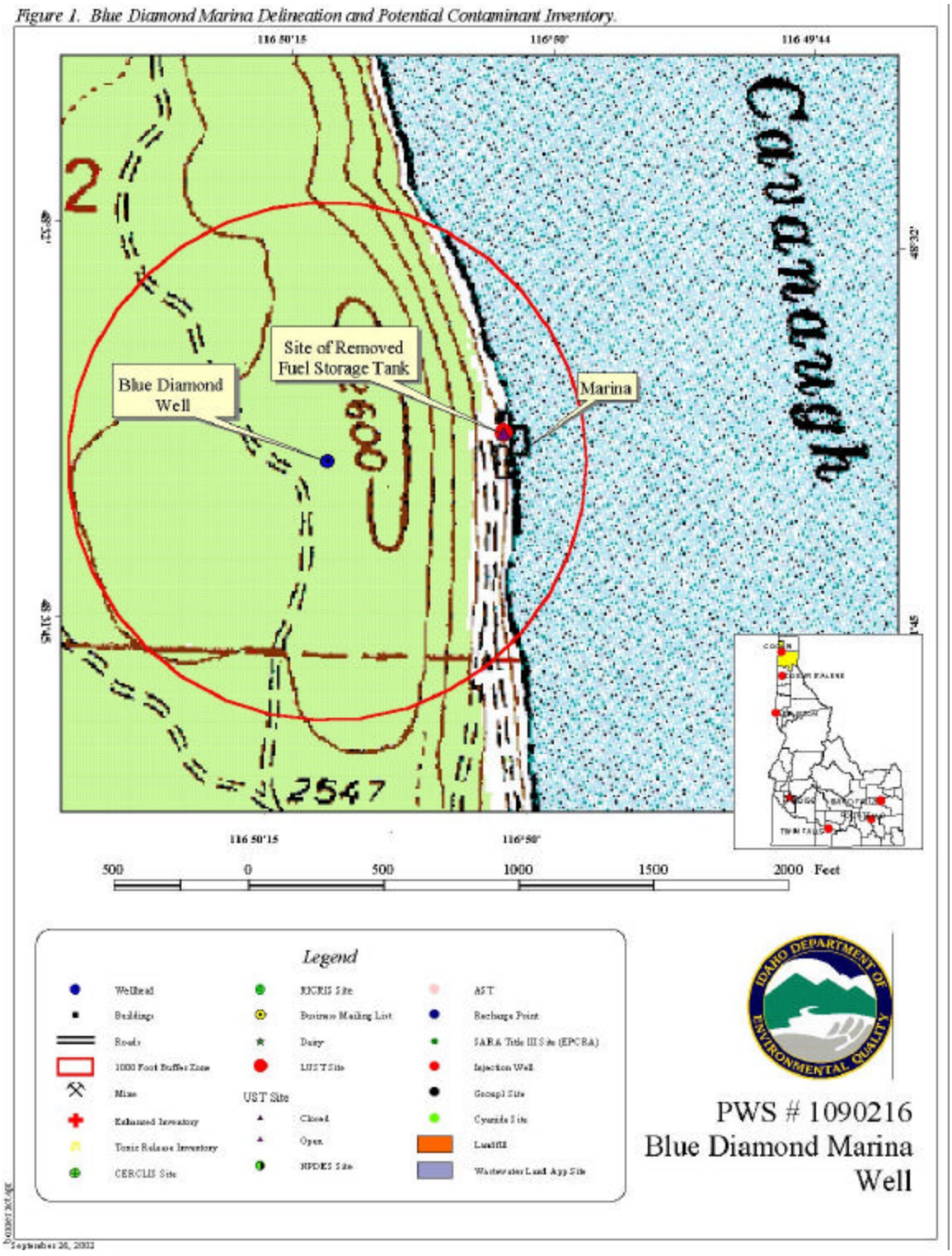
Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

Figure 1. Blue Diamond Marina Delineation and Potential Contaminant Inventory.



Ground Water Susceptibility

Public Water System Name : **BLUE DIAMOND MARINA** Well # : **WELL**

Public Water System Number : **1090216** 9/26/02 7:35:53 AM

1. System Construction		SCORE			
Drill Date	9/30/95				
Driller Log Available	YES				
Sanitary Survey (if yes, indicate date of last survey)	YES	1999			
Well meets IDWR construction standards	YES	0			
Wellhead and surface seal maintained	YES	0			
Casing and annular seal extend to low permeability unit	YES	0			
Highest production 100 feet below static water level	NO	1			
Well located outside the 100 year flood plain	YES	0			
Total System Construction Score		**1**			
2. Hydrologic Sensitivity					
Soils are poorly to moderately drained	YES	0			
Vadose zone composed of gravel, fractured rock or unknown	NO	0			
Depth to first water > 300 feet	YES	0			
Aquitard present with > 50 feet cumulative thickness	NO	2			
Total Hydrologic Score		**2**			
		IOC	VOC	SOC	Microbial
3. Potential Contaminant / Land Use		Score	Score	Score	Score
Land Use	WOODLAND	0	0	0	0
Farm chemical use high	NO	0	0	0	
IOC, VOC, SOC, or Microbial sources in Sanitary Setback	NO	NO	NO	NO	NO
Total Potential Contaminant Source/Land Use Score - Zone 1A		**0**	**0**	**0**	**0**
Potential Contaminant / Land Use - 1000-Foot Radius					
Contaminant sources present (Number of Sources)	YES	0	0	0	1
(Score = # Sources X 2) 8 Points Maximum		0	0	0	2
Sources of Class II or III leacheable contaminants or Microbials	YES	0	0	0	
4 Points Maximum		0	0	0	
1000-Foot Radius contains or intercepts a Group 1 Area	NO	0	0	0	0
Agricultural Land use	Less Than 25% Agricultural Land	0	0	0	0
Total Potential Contaminant Source / Land Use Score 1000-foot Radius		**0**	**0**	**0**	**2**
Cumulative Potential Contaminant / Land Use Score		**0**	**0**	**0**	**2**
4. Final Susceptibility Source Score		**3**	**3**	**3**	**4**
5. Final Well Ranking		Low	Low	Low	Low

The final scores for the susceptibility analysis were determined using the following formulas:

1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.27)

2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.35)

Final Susceptibility Ranking:

0 - 5 Low Susceptibility
6 - 12 Moderate Susceptibility
> 13 High Susceptibility